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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
THAKUR, VIREN A	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
12/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,025	OFTRING ET AL.	
	Examiner	Art Unit	
	VIREN THAKUR	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation "with ascorbic acid and/or vitamin E." This limitation is not clear as to whether ascorbic acid and vitamin E are mixed with the amino compounds or whether either ascorbic acid or vitamin E are mixed with the amino compounds.

4. Claim 7 recites the limitation "during the heating of food and animal feeds." This limitation is not clear as to whether the method requires the heating of both food and animal feeds or whether the method for reducing the formation of acrylamide during the heating of food or animal feeds.

5. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 1 is not clear if a heating step is positively recited. The claim recites, during the heating but never positively recites the step of heating.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-8,10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yueh et al. (US 4084008).

Regarding claim 1, Yueh et al. disclose the heating of potatoes which inherently contain amino compounds in the presence of reducing substances, which comprise, before the heating mixing the amino compound containing potatoes with ascorbic acid (Column 2, lines 7-10 and lines 29-31). After mixing the potatoes with ascorbic acid, the potatoes are then heated at up to 270°F, which is equivalent to 132°C and thus falls within the claimed range of claim 5 (column 2, line 32). Regarding claim 2, which recites the heating of the amino compounds in the presence of reducing sugars, it is noted that potatoes inherently comprise both amino compounds, such as amino acids and reducing sugars and therefore, upon heating at 270°F, for instance, Yueh et al. inherently disclose the step of heating in the presence of reducing sugars. Regarding claim 3, it is noted that potatoes inherently have amino acids. Regarding claim 4, it is noted that by disclosing the method, as recited in claims 1-3, the process of Yueh et al. would inherently have also reduced the formation of acrylamide during the heating of the potatoes. In any case, Yueh et al. discloses that the use of citric acid, ascorbic acid

or sodium bisulfite results in the reduction of non-enzymatic browning or scorching upon subsequent heat processing (column 2, lines 7-10). It has been known in the art that the scorching has been a result of the Maillard browning reaction. This reaction has also been associated with the formation of acrylamide. To therefore use ascorbic acid to prevent scorching would also have reduced the Maillard browning reaction and thus prevented the formation of acrylamide. Regarding claim 6, by dehydrating at 270°F, Yueh et al disclose heating between the range of 120 to 250°C. Regarding claims 7-8, it is noted that Yueh et al. discloses treating potatoes, which are starchy foods. By treating with ascorbic acid and then heating, Yueh et al. would inherently have reduced the formation of acrylamide. Regarding claims 10 and 13, it is noted that since Yueh et al. discloses the method and the same treatment materials, as claimed, the process of Yueh et al. would also have resulted in the claimed reduction in the amount of acrylamide formed upon heating.

8. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being anticipated by Liepa (US 3594187).

Regarding claims 1 and 7, Liepa discloses mixing amino compound containing products, such as potatoes with ascorbic acid (column 7, lines 47-50). Regarding claims 2 and 3, after mixing ascorbic acid with the potatoes, which inherently also comprise reducing sugars and amino acids, the potatoes are heated at preferably 375°F (column 5, lines 55-57), which is equivalent to 190°C and falls within the claimed ranges as recited in claims 5, 6 and 12. Further regarding claims 4, 10 and 13, it is noted that

by reciting the claimed method of treating potato pieces with ascorbic acid or potato dough with ascorbic acid, prior to heating, the process disclosed by Liepa would also inherently have resulted in the claimed reduction of acrylamide formation upon heating. Regarding claim 9, Liepa discloses frying to make potato chips (column 5, lines 47-59). Regarding claim 11, Liepa discloses using L-ascorbic acid (column 7, lines 47-50).

9. Claims 1-4, 7-10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Keenan (US 2676889).

Regarding claims 1, 7 and 8, Keenan teaches treating potatoes, a starchy food, which is subsequently fried to make potato chips (column 3, lines 16-27), with ascorbic acid prior to frying (column 3, line 75 to column 4, line 3). By treating sliced potato pieces with ascorbic acid and then heating by frying, the process disclosed by Keenan would inherently have resulted in the reduction of the formation of acrylamide during frying. Further regarding claims 4, 10 and 13, it is noted that by reciting the claimed method of treating potato pieces with ascorbic acid, prior to heating, the process disclosed by Keenan would also inherently have resulted in the claimed reduction of acrylamide formation upon heating, especially since Keenan discloses that the ascorbic acid reduces browning (column 4, lines 2-3).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay et al. (US 20040224066 A1) in view of Yueh et al. (US 4084008) and in further view of Mottram ("Acrylamide is formed in the Maillard Reaction"), Smith et al. ("Food Additives Data Book") and Rossell ("Frying - Improving Quality").

Regarding claims 1, 7 and 8, Lindsay et al. teaches mixing an acrylamide reducing agent, such as chelating agents (paragraph 0020) with starchy amino compound containing foods such as potatoes (paragraph 0026) prior to the frying (paragraph 0017 and paragraph 0025). It is noted that Lindsay et al. teaches wherein the chelating agent can be citric acid.

Claims 1, 7 and 8 differ from Lindsay et al. in specifically reciting wherein ascorbic acid is mixed with the amino compounds.

Yueh et al. teaches that after blanching, the potatoes can b treated with citric acid, ascorbic acid or sodium bisulfite for reducing non-enzymatic browning or scorching during subsequent heat processing steps (column 2, lines 7-10). This teaches the ordinary skilled artisan that both citric acid and ascorbic acid aide in the reducing of scorching and browning during heat processing. It would therefore have been obvious to modify Lindsay and add and/or substitute ascorbic acid for the citric acid for its art recognized function of reducing browning.

Mottram has been relied on to teach that the Maillard reaction has been known in the art to result in the formation of acrylamide, when foods such as potatoes are heated. Mottram teaches that products of the Maillard reaction are responsible for much of the flavor and color generated during baking and roasting. This provides further evidence to one having ordinary skill in the art that the browning and scorching that results during the heat treatment of potatoes, such as that taught by Yueh et al. is the result of the Maillard browning reaction. Since Yueh et al. teaches reducing scorching and browning using citric acid, ascorbic acid or sodium bisulfite, it is noted that the art taken as a whole teaches that both citric acid or ascorbic acid can be used to reduce the Maillard reaction browning, and thus the formation of acrylamide. Both Smith (see page 76, first line of the table) and Rossell (page 99, “Ascorbyl Palmitate and Metal Sequestrants”) have only been relied on as further evidence that ascorbic acid is a sequestrant and reducing agent (i.e. electron donor). Rossell has been further relied on to teach that that citric acid is similarly a sequestrant. Since Lindsay et al. teaches employing citric acid as a chelating agent, which is electron rich (i.e. electron donor) to substitute one

conventional chelating agent for reducing the browning reaction and thus the formation of acrylamide during heat processing for another chelating agent also used for reducing the formation of acrylamide during heat processing would therefore have been an obvious matter of choice and/or design for the purpose of achieving the optimal reducing in acrylamide during heat treatment.

Regarding claims 2-3, it is noted that since starchy foods such as potatoes inherently comprise reducing sugars and amino acids, both of these compounds are inherently heated in the presence of each other when frying. Regarding claims 4, 10 and 13, it is noted that Lindsay teaches reducing the formation of acrylamide (paragraph 0016). Since the combination teaches that it would have been obvious to have used ascorbic acid, the combination thus teaches the claimed method and would also have resulted in the claimed reduction in the formation of acrylamide. Regarding claims 5-6, 9 and 12, Lindsay et al. teaches heating by frying at temperatures such as 180°C (paragraph 0017).

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-10 and 12-13 above, and in further view of Liepa (US 3594187.

Claim 11 differs from the previously applied combination in specifically reciting using L-ascorbic acid or sodium L-ascorbate. It is noted that the combination, as applied above, already teaches using chelating agents such as citric acid to reduce the formation of acrylamide in starchy foods that contain both the reducing sugars and the

amino acids that result in the formation of acrylamide. The secondary references that have been relied on teach that ascorbic acid can be used for the purpose of reducing browning and scorching (i.e. Maillard reaction) which, as evidenced by Mottram, results in the formation of acrylamide.

It is noted that Liepa already teaches treating a starch based food such as potatoes with L-ascorbic acid or sodium L-ascorbate prior to heating and frying. Therefore it has been recognized in the art to use L-ascorbic acid as a treatment substance prior to the heat treatment of starchy foods, which also comprise an amino acid and reducing sugars. In view of the art taken as a whole, since ascorbic acid is a chelating substance and has been used to reduce Maillard reaction browning, to use a specific isomer of ascorbic acid, which also would have been a chelating substance would therefore have been an obvious matter of choice and/or design.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIREN THAKUR whose telephone number is (571)272-6694. The examiner can normally be reached on Monday through Friday from 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steve Weinstein/
Primary Examiner, Art Unit 1794

/V. T./
Examiner, Art Unit 1794